

if the object becomes undetected by the first detector and the second detector, determining that the object interacting with the touch screen indicates an out-of-range state.

9. The method of claim 1, wherein the first detector and the second detector are each selected from the group consisting of: a line scan camera, an area scan camera and a phototransistor.

10. A touch screen system for discerning between user interaction states, comprising:

- a touch screen;
- a first detector in proximity to the touch screen for generating a first signal representing a first image of an object interacting with the touch screen;
- a second detector in proximity to the touch screen for generating a second signal representing a second image of the object interacting with the touch screen; and
- a signal processor for executing computer-executable instructions for:
 - processing the first signal to determine approximated coordinates of a first pair of outer edges of the object,
 - processing the second signal to determine approximated coordinates of a second pair of outer edges of the object,
 - calculating an approximated touch area based on the approximated coordinates of the first pair of outer edges and the approximated coordinates of the second pair of outer edges of the object,
 - if the approximated touch area is less than or equal to a threshold touch area, determining that the object interacting with the touch screen indicates a tracking state, and
 - if the approximated touch area is greater than the threshold touch area, determining that the object interacting with the touch screen indicates a selection state.

11. The touch screen system of claim 11, wherein the approximated coordinates of the first pair of outer edges and the approximated coordinates of the second pair of outer edges of the object are determined using slope line calculations.

12. The touch screen system of claim 11, wherein the threshold touch area is established by calibrating the touch screen system when the object interacting with the touch screen is known to indicate the tracking state.

13. The touch screen system of claim 11, wherein the signal processor executes further computer-executable instructions for:

- if the object interacting with the touch screen indicates either the selection state or the tracking state, determining whether the object becomes undetected by the first detector and the second detector; and
- if the object becomes undetected by the first detector and the second detector, determining that the object interacting with the touch screen indicates an out-of-range state.

14. The touch screen system of claim 11, wherein the signal processor executes further computer-executable instructions for:

- if the object interacting with the touch screen indicates the selection state, determining whether the object moves relative to the touch screen;
- if the object moves relative to the touch screen, re-calculating the approximated touch area and determining whether the re-calculated touch area remains greater than or equal to the threshold touch area; and
- if the re-calculated touch area remains greater than or equal to the threshold touch area, determining that the object interacting with the touch screen indicates a dragging state.

15. The touch screen system of claim 14, wherein the signal processor executes further computer-executable instructions for determining that the object interacting with the touch screen indicates the tracking state, if the re-calculated touch area does not remain greater than the threshold touch area.

16. The touch screen system of claim 11, wherein the signal processor executes further computer-executable instructions for:

- if the object interacting with the touch screen indicates either the selection state, the dragging state or the tracking state, determining whether the object becomes undetected by the first detector and the second detector; and
- if the object becomes undetected by the first detector and the second detector, determining that the object interacting with the touch screen indicates an out-of-range state.

17. The touch screen system of claim 11, wherein the first detector and the second detector are each selected from the group consisting of: a line scan camera, an area scan camera and a phototransistor.

18. The touch screen system of claim 11, further comprising a light source for illuminating the object; and

- wherein the first detector and the second detector detect illumination level variations caused by the object interacting with the touch screen.

19. The touch screen system of claim 11, wherein the object comprises a user's finger.

20. The touch screen system of claim 11, wherein the object comprises a stylus having a spring loaded plunger protruding from a tip of the stylus, said plunger producing a relatively small touch area when interacting with the touch screen; and

- wherein said plunger collapses into the tip of the stylus when sufficient compression is applied to the spring, causing the tip of the stylus to contact the touch screen and producing a relatively larger touch area.

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